

RESEARCH AND DEVELOPMENT, NEUCHATEL - QUARTERLY REPORT

DIVISION : RESEARCH

SUBJECT TITLE : MICROBIOLOGICAL ANALYSES

PERIOD COVERED : April - June 1990

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ATO - FINLAND

ML cigarettes produced in Finland from total-blend strips, before and after storage over a weekend, were analysed for their microbiological status [1,2]. Neither molds nor yeasts could be detected on either version. No significant differences were found in total bacterial counts as well as in the spore proportions. Results are in line with a standard ML microbiological profile. Subjective evaluation did not show significant differences; both versions well up to standard [3].

ML - UK EX BOZ

At the request of PMH, off-taste ML-UK cigarettes produced from two batches were analysed for their microbiological content. Results were compared with those obtained with a reference cigarette [4]. No significant differences could be found between the three samples. Total bacterial counts were around 2.5 E+6, the proportion of dormant spores accounting for 90 % [5]. The problem was related to Burley Top Flavor handling.

PROJECT KISS

At the request of PM-EEMA, the microbial profiles of two ML cigarettes were established in the context of the PM 80 boxes evaluation. The control was processed normally in Richmond. For the test, PM 80 boxes containing the cut filler were air-mailed to England and then shipped back to Richmond for cigarette making. Twice as many bacteria were found in the test as in the control, but both counts were in accordance with our standard

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profile. 100 % spores were also found in the test, indicating that conditions for spore germination were not encountered during shipment [6]. Due to negative subjective evaluation, the use of PM 80 boxes for shipping cut filler was not recommended [7].

DCC - UNIT

At the request of PMH-QA, the microbiology of cigarette samples produced from tobacco processed through vacuum chambers, conditioning and the Dickinson Conditioning Cylinder (DCC), was compared [8]. Total bacterial counts were found to be similar in both samples. However, the dormant spore proportion after DCC processing was found to be 10 % above that of vacuum treatment, indicating *Bacillus* spore germination to be less activated in the DCC-unit [9].

AMF - LEGG

At the request of PMH Engeneering, tobacco temperature was profiled in AMF-LEGG dryers. Five different air settings were tested. As reference, temperature was first recorded in both LEGG dryers in production conditions. As expected, the tobacco temperature in dryer 716 with air bypass was approx. 7°C lower than the temperature recorded in dryer 729 (Fig. 1) [10]. Trials were conducted by varying the ratio between process and bypass air flows on dryer 716. Fig. 2 shows that only slight differences were observed between the trials. For instance, by increasing process air flow from 20 to 30 M3/min., only a slight decrease in tobacco temperature was observed due to water vaporisation. Increasing bypass air flow did not affect tobacco temperature. For each setting, samples were taken after the dryer for microbiological analyses. No significant differences could be observed for total bacterial counts as well as spore proportions. In the references, however, a difference was observed between dryers 716 and 729. In spite of the same total bacterial counts, the proportion of dormant spores after dryer 729 was 17 % lower than after dryer 716. This indicates that conditions encountered in dryer 729 were more propitious to spore germination. Cigarettes produced through dryer 716 were subjectively preferred.

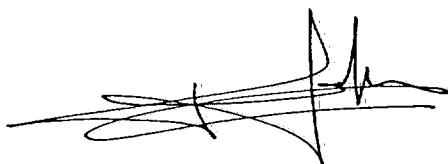
REFERENCES

[1] Memo from Mäder-D. to Hofer-M., March 28, 1990.
[2] Profs note from Hofer-M. to Mäder-D., April 27, 1990.

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- [3] Profs note from Mäder-D. to Hofer-M., May 9, 1990.
- [4] Profs note from Guequierre-J. to Berney-J., May 28, 1990.
- [5] Profs note from Hofer-M. to van Duuren-B., June 6, 1990.
- [6] Profs note from Hofer-M. to Butticaz-B., June 25, 1990.
- [7] Profs note from Stathopoulos-A. to Butticaz-B., June 25, 1990.
- [8] Memo from Smits-S. to Hofer-M., May 5, 1990.
- [9] Profs note from Hofer-M. to Smits-S., May 5, 1990.
- [10] Profs note from Hofer-M. to van Duuren-B., July 3, 1990.

A handwritten signature consisting of several intersecting and overlapping lines, forming a stylized, abstract shape.

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Figure 1 : BOZ AMF LEGG DRYER COMPARISON

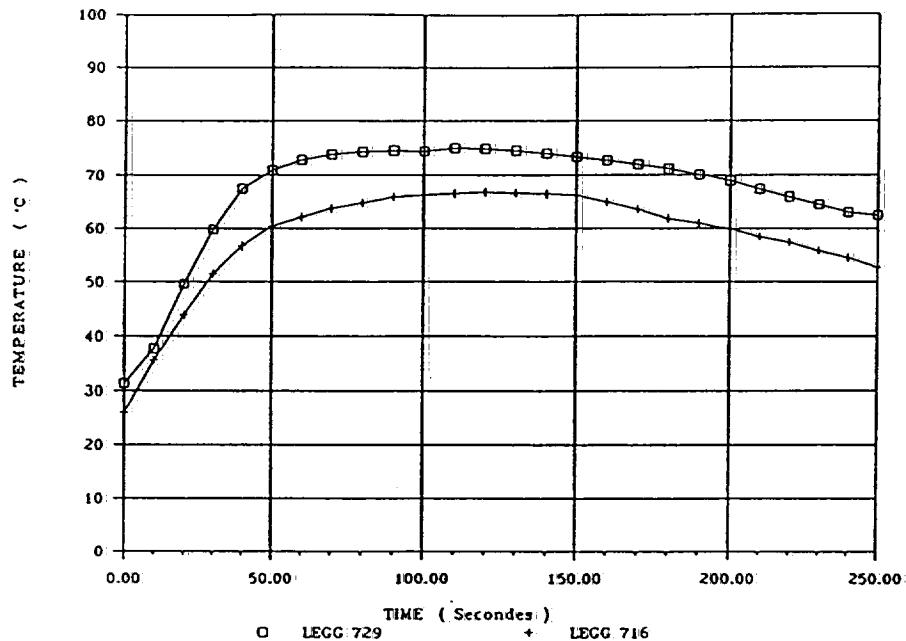
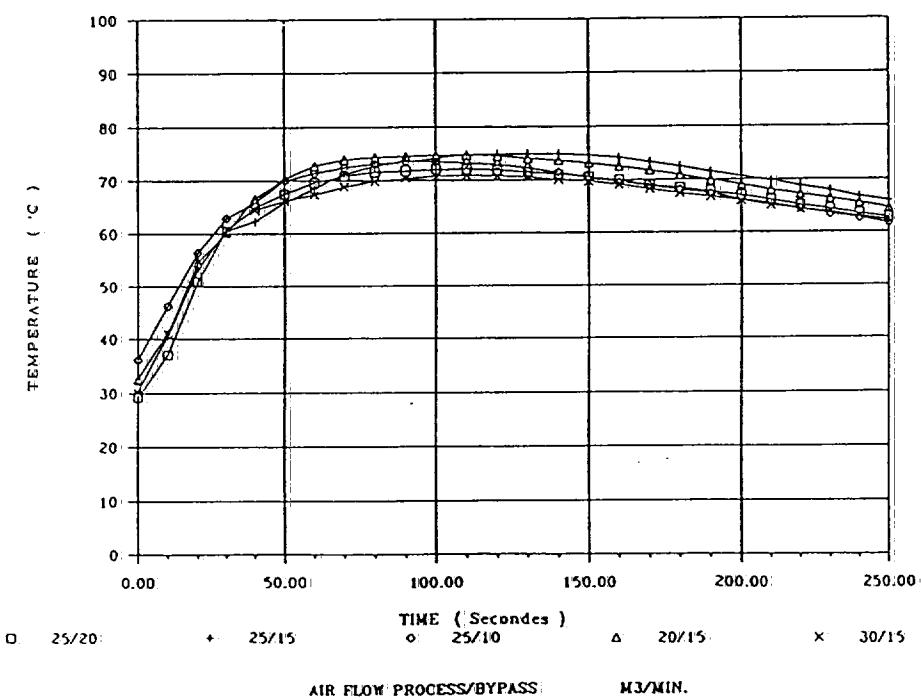


Figure 2 : BOZ AMF LEGG DRYER 716 ML 017 TEST



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